RIVERS AND FLOODS

By RICHMOND T. ZOCH

(River and Flood Division, Montrose W. Hayes, in charge)

Ice was very thick at the beginning of March in the rivers of the North Atlantic Slope following an unusually cold February. When the weather became warm early in March considerable apprehension was felt along the rivers that ice gorges would do much damage. However, the ice moved out without causing more than slight damage in any river; in fact, in many rivers of this section flood stage was not reached.

Ice gorges were reported in the Missouri River and while the flood stage was not reached at any of the Weather Bureau's river gages, flooding and moderate damage was caused by a gorge at Oak Mills, Kans.

Considerable apprehension was felt along the Ohio, especially at Pittsburgh. In this connection the following reports of officials on the conditions in the Ohio River during February and March are of interest:

Pittsburgh, Pa.—On March 1 the district was covered with newly fallen snow from 6 to 10 inches deep, and the rivers above Pittsburgh were covered with thick ice. On the 2d the temperature rose to considerably above freezing and rain set in during the afternoon. The ice in the rivers began breaking up on the 3d, forming gorges in various sections of the rivers, and consequently back water above the gorges. The rise in the upper Monongahela River reached flood stages as a result of heavy run-off, but in the Allegheny the flood stages were due to a huge gorge that formed at the head of slack water.

The only damage due to flooding occurred at Parkers Landing and as far down as Mosgrove, Allegheny River, and did not exceed $4,000 for suspension of business and damage to property. The remainder of the damage reported ($126,600) was caused by ice.

At East Brady, Allegheny River, between Parkers Landing and Dam No. 8, the gorged ice lifted the steel Highway Bridge off the piers, and carried two spans about 19 miles down the river and over Dam No. 8, where they sank.

In the Monongahela River several fleets of loaded coal barges were tied along the shores during the early part of the winter, and were frozen in during February. When the ice started out the mooring lines snapped and the loaded barges started down the river with the ice. Many of the barges were caught later, and saved, but eight of them went over Dams Nos. 4 and 3 and were wrecked.

Cincinnati, Ohio.—Floating ice made its appearance in the Cincinnati district on February 3, and ice of varying amounts and thickness was observed in the river during the remainder of the month. Practically all of the dams in the district were lowered on the 9th on account of the menacing ice conditions. This resulted in abnormally low river stages which became so low by the middle of the month that the raising of the dams again became necessary. By the 25th, however, heavy ice again forced the lowering of the dams. The ice and low water caused an interruption and at times complete cessation of navigation.

The mean daily river stage at Cincinnati for February 1934, 11.7 feet, was the lowest mean daily stage recorded during any February since the beginning of official records.

During the month of March flood stages were not reached at any station along the Ohio, but crest stages were within a few feet of the flood line at several places between the 7th and 9th.

Cairo, Ill.—Rivers in this district were comparatively low throughout the month of February. Dams 50 and 51 were down on the 2d and 3d, but not much rise occurred. All Ohio River dams were lowered on the night of the 26th–27th, mostly on account of an expected run of floating ice, and they continued down at the close of the month, with a slow rise in progress.

The mean stage at Cairo was 10.1 feet, very low for February, the normal stage being 29.2 feet. The minimum stage of 7 feet at Cairo on the 19th was the lowest for the month of February since the year 1895.

Although flood stages were reached in the Ohio at most points below Dam No. 47 only very slight damage was caused.

In addition to the local inundations caused by ice gorges there were numerous floods in the eastern half of the country, but all were of minor importance, except one in the Sabine River, which will be commented on in a later issue of the MONTHLY WEATHER REVIEW.

Table of flood stages during March 1934

[All dates in March unless otherwise specified]

River and station	Flood stage	Above flood stages—dates		Crest	
		From—	To—	Stage	Date
ATLANTIC SLOPE DRAINAGE	*Feet*			*Feet*	
Hoosic: Hoosick Falls, N.Y.	4	5	6	5.0	5
Hudson:					
Troy, N.Y.	15	6	6	18.3	6
Albany, N.Y.	12	6	6	15.8	6
Delaware: Trenton, N.J.	12	4	6	14.2	5
Chenango: Sherburne, N.Y.	8	4	6	9.2	5
		27	28	9.6	27
Susquehanna:					
Oneonta, N.Y.	12	5	7	16.2	5
Bainbridge, N.Y.	11	4	6	13.8	5
Binghamton, N.Y.	14	5	6	17.7	5
James:					
Columbia, Va.	10	4	11	19.9	5
		28	Apr. 1	19.0	29
Richmond, Va.	8	6	7	9.8	6
Dan: Danville, Va.	8	4	4	8.0	4
Roanoke:					
Randolph, Va.	18	5	6	22.8	5
		29	29	21.1	29
Weldon, N.C.	31	5	8	38.8	7
		29	31	35.7	31
Williamston, N.C.	10	11	17	11.3	13
		29	Apr. 9	11.4	Apr. 5, 6
Neuse:					
Neuse, N.C.	13	30	30	13.9	30
Smithfield, N.C.	12	29	31	12.8	31
Saluda:					
Pelzer, S.C.	7	4	6	10.3	5
Chappells, S.C.	12	Feb. 23	Feb. 28	12.1	Feb. 28
		5	8	15.5	7
		29	29	12.2	29
Broad: Blairs, S.C.	14	5	6	17.4	5
		29	29	17.0	29
Santee:					
Rimini, S.C.	12	1	12	16.1	10
Ferguson, S.C.	12	8	13	13.1	11, 12
Savannah:					
Ellenton, S.C.	14	Feb. 28	3	17.2	2
		5	13	21.9	8
		29	Apr. 3	17.1	31
Clyo, Ga.	13	9	21	17.1	13
Ogeechee:					
Midville, Ga.	6	10	10	6.0	10
Dover, Ga.	7	13	18	7.8	15
Ocmulgee: Abbeville, Ga.	11	10	15	12.9	12
Oconee: Milledgeville, Ga.	22	5	5	26.0	5
Altamaha:					
Charlotte, Ga.	12	11	19	15.5	14
Everett City, Ga.	10	17	23	10.8	18, 19
EAST GULF OF MEXICO DRAINAGE					
Chattahoochee: Alaga, Ala.	30	6	7	33.5	7
Apalachicola: Blountstown, Fla.	15	6	15	20.0	9, 10
Choctawhatchee: Caryville, Fla.	12	8	9	12.2	8
Oostanaula:					
Resaca, Ga.	22	5	7	27.3	6
Rome, Ga.	25	5	6	27.9	5
Etowah: Canton, Ga.	17	4	5	19.5	4
Coosa:					
Mayos Bar Lock, Ga.	28	5	7	31.6	6
Gadsden, Ala.	20	5	11	23.3	6
Lock No. 4, Lincoln, Ala.	17	4	7	19.5	4
Cahaba: Centerville, Ala.	23	Feb. 26	Feb. 26	27.5	Feb. 26
		3	5	32.0	3
Alabama:					
Montgomery, Ala.	30	5	9	37.5	6
Selma, Ala.	35	6	10	41.4	8
Millers Ferry, Ala.	40	7	12	45.0	9
Black Warrior: Lock No. 10, Tuscaloosa, Ala.	46	3	7	57.6	4
Tombigbee:					
Aberdeen, Miss.	34	5	5	34.0	5
Lock No. 4, Demopolis, Ala.	39	4	17	53.9	12
Lock No. 3, Ala.	33	Feb. 28	19	54.7	13
		29	Apr. 3	38.0	Apr. 1
Lock No. 2, Ala.	46	4	18	55.5	14
Lock No. 1, Ala.	31	4	21	37.6	16, 17
Chickasawhay: Enterprise, Miss.	20	5	6	21.3	5
Pascagoula: Merrill, Miss.	18	6	11	18.8	8, 9
Pearl:					
Edinburgh, Miss.	20	5	10	23.4	7
Jackson, Miss.	18	3	19	28.0	12, 13
Monticello, Miss.	15	4	8	18.8	4
Columbia, Miss.	17	5	9	19.0	6, 7
Bogue Chitto: Franklinton, La.	10	4	6	11.5	5
West Pearl: Pearl River, La.	12	4	27	15.2	9

Table of flood stages during March 1934—Continued

River and station	Flood stage	Above flood stages—dates From—	To—	Crest Stage	Date
MISSISSIPPI SYSTEM					
Ohio Basin					
Allegheny:	*Feet*			*Feet*	
Parkers Landing, Pa	18	5	5	24.4	5
Lock No. 5, Schenley, Pa	24	6	6	28.0	6
Lock No. 4, Natrona, Pa	24	6	6	25.9	6
Monongahela:					
Lock No. 15, Hoult, W.Va	22	3	3	22.0	3
Lock No. 7, Greensboro, Pa	30	4	4	30.3	4
Guyandot: Logan, W.Va	20	3	3	20.8	3
Levisa Fork: Pikeville, Ky	35	3	3	35.0	3
North Fork: Jackson, Ky	24	3	5	35.5	4
Barren: Bowling Green, Ky	20	Feb. 27	Feb. 28	22.5	Feb. 27
		4	6	23.3	5
Green:					
Lock No. 6, Brownsville, Ky	28	4	8	32.1	6
Lock No. 4, Woodbury, Ky	33	Feb. 28	12	40.2	7
Lock No. 2, Rumsey, Ky	34	5	16	37.8	13
West Fork:					
Anderson, Ind	8	27	29	9.6	28
Edwardsport, Ind	12	29	Apr. 1	14.4	30
New: New River, Tenn	18	3	3	20.8	3
Cumberland:					
Williamsburg, Ky	19	4	4	21.8	4
Burnside, Ky	50	4	4	51.4	4
Celina, Tenn	28	Feb. 27	12	42.3	6
		21	30	37.2	27
Carthage, Tenn	40	4	7	44.1	6
		27	28	41.7	27
Nashville, Tenn	40	4	11	43.7	9
		26	31	42.3	29
Clarksville, Tenn	46	5	13	49.2	10
		29	Apr. 1	46.8	31
Lock F, Eddyville, Ky	50	6	17	57.1	13, 14
		28	Apr. 4	54.0	Apr. 3
North Fork: Mendota, Va	8	3	4	10.0	3
Pigeon: Newport, Tenn	6	3	5	9.5	4
French Broad:					
Ashville, N.C	4	3	5	5.0	3
Dandridge, Tenn	12	4	4	12.4	4
Little Tennessee: McGhee, Tenn	18	4	4	21.1	4
Clinch: Clinton, Tenn	25	5	5	25.3	5
		26	26	26.0	26
Hiwassee: Charleston, Tenn	22	4	4	22.4	4
Elk: Fayettville, Tenn	14	2	6	24.8	3
		24	28	22.3	24
Duck: Columbia, Tenn	30	25	27	35.1	26
Tennessee:					
Chattanooga, Tenn	30	5	7	34.1	6
Bridgeport, Ala	18	4	9	24.1	6
		26	29	20.0	28
Widows Bar Dam, Ala (lower gage)	26	4	9	33.3	6
		26	29	28.7	28
Guntersville, Ala	25	4	11	32.0	8
		27	31	28.1	29
Decatur, Ala	20	7	10	20.0	7–10
Florence, Ala	18	3	11	21.5	5
Riverton Lock, Ala	33	3	13	41.8	6
		27	Apr. 1	35.9	30

Table of flood stages during March 1934—Continued

River and station	Flood stage	Above flood stages—dates From—	To—	Crest Stage	Date
MISSISSIPPI SYSTEM—continued					
Ohio Basin—Continued					
Tennessee—Continued.	*Feet*			*Feet*	
Savannah, Tenn	39	6	12	40.8	8, 9
Johnsonville, Tenn	31	8	13	31.5	9–11
Ohio:					
Pittsburgh, Pa	25	6	6	25.8	6
Point Pleasant, W.Va	40	7	7	40.0	7
Dam No. 47, Newberg, Ind	35	9	16	38.2	13
Evansville, Ind	35	10	16	38.5	13, 14
Dam No. 48	35	12	15	36.7	14
Dam No. 50	32	10	18	36.3	15
Dam No. 52	35	10	18	39.0	15
Dam No. 53	38	11	18	41.4	15, 16
Cairo, Ill	40	13	17	41.2	16
White Basin					
Black: Black Rock, Ark	14	27	31	19.3	27
White:					
Georgetown, Ark	21	28	(1)	24.5	31
Clarendon, Ark	26	30	(1)	29.8	Apr. 7
Arkansas Basin					
Petit Jean: Danville, Ark	20	26	29	22.8	27
Red Basin					
Ouachita:					
Arkadelphia, Ark	12	27	28	19.3	27
Camden, Ark	26	5	8	28.2	6
		28	Apr. 4	33.3	31
Sulphur:					
Ringo Crossing, Tex	20	2	6	24.0	3
Naples, Tex	22	5	13	25.4	7
		29	Apr. 2	24.8	30
Lower Mississippi Basin					
Big Lake Outlet: Manila, Ark	10	27	(1)	------	------
St. Francis: Fisk, Mo	20	29	30	20.8	29
Tallahatchie: Swan Lake, Miss	24	8	29	27.7	14–16
Atchafalaya Basin					
Atchafalaya: Atchafalaya, La	22	25	28	22.0	25–28
WEST GULF OF MEXICO DRAINAGE					
Sabine:					
Logansport, La	25	3	13	28.4	8
Bon Wier, Tex	21	29	31	21.4	30, 31
Trinity:					
Dallas, Tex	28	2	3	29.6	3
Liberty, Tex	25	4	12	27.5	7

[1] Flood continued into April.

WEATHER OF THE ATLANTIC AND PACIFIC OCEANS

[The Marine Division, Willis E. Hurd, temporarily in charge]

NORTH ATLANTIC OCEAN

By HERBERT C. HUNTER

Atmospheric pressure.—The mean pressure during March 1934 was above normal over most of the North Atlantic, particularly from the vicinity of the North American coast between the Gulf of St. Lawrence and Cape Hatteras eastward to the Iberian Peninsula. However, the northeastern portion of the ocean had average pressure lower than normal, with greatest deficiency around the British Isles and thence northwestward to Iceland.

The lowest reading at any of the selected shore stations was 28.47 inches on the 1st, at Reykjavik, Iceland. Readings a very little lower comparatively near to the southwestern tip of Ireland were reported as occurring during the morning of the 17th by three vessels, the lowest of them being 28.40 inches by the American steamship *Steel Age*, in latitude 50°15′ N., longitude 13°22′ W.

TABLE 1.—*Averages, departures, and extremes of atmospheric pressure (sea level) at selected stations for the North Atlantic Ocean and its shores, March 1934*

Station	Average pressure	Departure	Highest	Date	Lowest	Date
	Inches	*Inch*	*Inches*		*Inches*	
Julianehaab, Greenland	29.45	------	30.42	29	28.63	20
Reykjavik, Iceland	29.49	−0.19	30.11	31	28.47	1
Lerwick, Shetland Islands	29.56	−.14	30.21	25	28.72	17
Valencia, Ireland	29.68	−.22	30.40	27	28.64	17
Lisbon, Portugal	30.03	+.03	30.39	4	29.50	31
Madeira	30.12	+.11	30.40	16	29.74	31
Horta, Azores	30.34	+.16	30.58	22	29.91	31
Belle Isle, Newfoundland	29.93	+.13	30.46	25	29.26	7
Halifax, Nova Scotia	30.15	+.19	30.90	31	29.68	6, 7
Nantucket	30.14	+.16	30.75	1	29.58	5
Hatteras	30.16	+.12	30.64	1	29.46	20
Bermuda	30.20	+.06	30.48	1	29.64	21
Turks Island	30.05	+.03	30.18	1	29.96	15, 20
Key West	30.08	+.03	30.30	12	29.87	10
New Orleans	30.13	+.09	30.35	12	29.82	4
Cape Gracias, Nicaragua	29.95	+.02	30.00	7, 8	29.90	24, 25

NOTE.—All data based on a.m. observations only, with departures compiled from best available normals related to time of observation, except Hatteras, Key West, Nantucket, and New Orleans, which are 24-hour corrected means.